



COUNTY OF WELLINGTON

COMMITTEE REPORT

To: Chair and Members of the Roads Committee
From: Don Kudo, County Engineer
Date: Tuesday, April 11, 2023
Subject: **Intersection Assessments – Roundabouts and Traffic Signals**

Background:

The intent of this report is to provide the Roads Committee with information on proposed intersection improvements with respect to traffic control utilizing signalization or roundabouts. The County currently has 38 signalized intersections and 10 roundabouts. The current budget forecast has 2 future intersections proposed for full traffic signals to be installed and 16 future roundabouts to be constructed. The future roundabout locations include 7 locations that currently have traffic signals (3 are temporary traffic signals). The assessment and decisions to implement traffic signals or a roundabout are varied and site specific. Attached to this report is a map showing intersections with existing and future proposed roundabouts and traffic signals.

The determination of intersection traffic control is based on Ontario Traffic Manual Book 12 warrant methodology that takes into account the collection of traffic, pedestrian, collision and geometric data. There are 7 justification factors that can be taken into account for a traffic control warrant analysis as follows:

1. Minimum Eight-Hour Vehicle Volume
2. Delay to Cross Traffic
3. Combination Warrant (Volume and Delay)
4. Minimum Four-Hour Vehicle Volume
5. Collision Experience
6. Pedestrian Volume
7. Projected Volumes

Should an intersection meet the warrants for traffic control, the County reviews whether a roundabout would be an appropriate alternative to a signalized intersection. Roundabouts are cited as beneficial for a number of factors instead of signalized intersections:

- minimizes conflict points for pedestrians and motorists (ie. opportunities for collisions)
- lowers vehicle speeds for traffic calming and transition from a rural to urban areas
- reduces the likelihood of angle or T-bone collisions and injury severity
- manages higher volumes of traffic more efficiently and safely
- improves traffic flow by increasing traffic capacity of intersections
- reduces vehicle idling, emissions and fuel consumption
- reduces maintenance costs and allows for ease of winter maintenance operations

The Road Master Action Plan (Road MAP) included an intersection assessment review of 22 locations based on input from Roads staff, County and Local Councillors, OPP and public feedback. The purpose of the review was to propose possible improvements to be implemented, including roundabouts, traffic signals, signage, and geometric changes. The reviews were conducted in accordance with the

approved Road MAP: Data Driven Safety Strategy and other industry guidelines. Staff received a thorough detailed evaluation package analysis from our consultant team for each intersection location. The attached intersection evaluation template will be a useful tool for staff to use for future intersection assessments to determine the appropriate traffic control including whether a roundabout or traffic signals should be implemented.

Based on the Road MAP assessment, County experience, and traffic engineering practices, some key considerations for the use of roundabouts instead of traffic signals at County intersections are as follows:

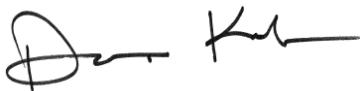
- intersection of two County roads at higher posted speed limit locations
- intersection geometry is not standard and sight lines are poor
- traffic study indicating intersection capacity issues, high turning movements and high truck volumes
- property being available to construct a roundabout
- high collision rate has been experienced
- need for traffic calming in a location with known safety concerns

In summary, intersection assessments and improvements consider many site specific factors in the design and decision making process. Technical warrants and guidelines provide a consistent approach to determine the appropriate traffic control measures to implement roundabouts or traffic signals at intersections throughout the County.

Recommendation:

That the report entitled Intersection Assessments – Roundabouts and Traffic Signals be received for information.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Don Kudo', with a stylized, cursive script.

Don Kudo, P. Eng.
County Engineer

Attachments: Roundabouts and Traffic Signals – Existing and Proposed Future Works - Map
Road MAP Intersection Assessment - Template